whereby fluid flowing through the stack is forced to follow a tortuous flow path to flow around the columns, and has the ability to flow parallel to the plane of each said plate.

2. (Amended) A heat exchanger according to claim 1, wherein the ligaments of each plate of each pair of adjacent plates are displaced relative to those of the other plate of the pair.

3. (Amended) A heat exchanger according to claim 1 or 2, wherein the top and bottom of the stack are closed by unperforated plates.

B1

4. (Amended) A heat exchanger according to claim 1, wherein the stack has side plates which are formed by the stacking of unperforated border regions around the edges of individual plates of the stack, the unperforated border regions being integrally formed as part of the plate.

5. (Amended) A heat exchanger according to claim 1, wherein the perforations in the plates and the reduced thickness of the ligaments are produced by photochemical etching or spark erosion.

6. (Amended) A heat exchanger according to claim 1, wherein at least two differently perforated plates are used, the two plates having different ligament patterns.

7. (Amended) A heat exchanger according to claim 1, wherein the column precursors are of circular cross section.

8. (Amended) A heat exchanger according to claim 1, wherein the heat exchanger further comprises a plurality of joined together stacks of the parallel perforated plates, each stack being separated from an adjacent stack by a solid unperforated plate whereby two or more separate fluid stream passageways are provided.

9. (Amended) A heat exchanger according to claim 1, wherein the perforated plates are of metal of thickness 0.5 mm or less.

B1

10. (Amended) A heat exchanger according to claim 1, wherein the components of the stack are diffusion bonded together.

11. (Amended) A heat exchanger according to claim 1, wherein the components of the stack are brazed together.

12. (Amended) A heat exchanger according to claim 1, wherein the plates of the stack are provided at their edges with extensions to assist location of the plates in the stack.

14. (Amended) A heat exchanger according to claim 1, wherein the loops are reinforced by cross-members.

B2

15. (Amended) A heat exchanger according to claim 1, wherein the heat exchanger further comprises a plurality of stacks of plates and one pair of adjacent stacks are separated by a plate having perforations to allow controlled injection of fluid at higher pressure from one stack into fluid at lower pressure in an adjacent stack.

16 (Amended) A heat exchanger according to claim 1, wherein the heat exchanger further comprises a plurality of passageways to contain catalytic material, those passageways being separated by an intervening plate from the stack of parallel perforated plates.

17. (Amended) A heat exchanger according to claim 16, wherein the passageways to contain the catalytic material are defined between plates having parallel ribs running the length of the plates.

18. (Amended) A heat exchanger according to claim 16 or 17, wherein the passageways to contain the catalytic material closed at one or both of their ends by mesh material.

B2

19. (Amended) A perforated plate, wherein the plate has an array of spaced column precursors, the column precursors being of thickness equal to the plate thickness and being joined together by ligaments, each ligament extending between a pair of adjacent column precursors, the ligaments having a thickness less than the plate thickness , wherein each plate is provided with extensions in the form of loops which stack together to provide one or more tanks at the sides of the stack, and whereby fluid has the ability to flow within the plane of said plate.

Please see the attached Appendix for changes made to the above claims.